DOCUMENT RESUME

ED 206 892 CE 030 023

TITLE Report of Factors Influencing the Election of Nontraditional Vocational Programs by High School Males. Part I--Related Literature and Procedures.

INSTITUTION Rutgers, The State Univ., New Brunswick, N.J. Douglass Coll.

SPONS AGENCY New Jersey State Dept. of Education, Trenton. Div. of Vocational Education.

PUB DATE Jun 81

NOTE 41p.

EDRS PRICE MF01/PC02 Plus Postage.

DESCRIPTORS Aptitude; Business Education; Career Choice; Cosmetology; Cultural Influences; *Enrollment Influences; Environmental Influences; Females; *Health Occupations; High Schools; Literature Reviews; *Males; *Nontraditional Occupations; *Occupational Aspiration; *Occupational Home Economics; Office Occupations Education; Parent Influence; Personality Assessment; Personality Traits; Research Methodology; Research Problems; Sex Fairness; Sex Stereotypes; Socioeconomic Influences; Vocational Aptitude; Vocational Education

ABSTRACT

A project was conducted to identify some of the factors that influence male high school students to elect nontraditional vocational programs: home economics-related occupations, health occupations, cosmetology, and business and office practices. It was proposed that this information could be used in the career guidance, recruitment, and retention of nontraditional students in these programs. Information was collected on 95 male and female New Jersey high school students from both vocational and comprehensive high schools. Background information on each student was gathered, and aptitudes and personality characteristics were measured using the Differential Aptitude Test and the Strong Campbell Interest Inventory. Unfortunately, a sufficient number of male students could not be located in the area of cosmetology and business and office practices for valid statistical analysis. Therefore, the preliminary data presented includes only home economics-related occupations and health occupations, and the small numbers of students involved in the study make findings inconclusive. Additional attempts will be made to locate more students, and a more comprehensive analysis of the findings will be reported at that time. (This report contains a review of the literature on factors influencing career choice.) (KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

SREG 112

ED206892

REPORT OF

FACTORS INFLUENCING THE ELECTION OF NONTRADITIONAL VOCATIONAL PROGRAMS BY HIGH SCHOOL MALES

PART I - RELATED LITERATURE AND PROCEDURES

1980-1981

Douglass College
Davison Hall - Nichol Avenue
New Brunswick, NJ 08903

Project Director
Doris L. Dopkin

CE 030 023

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

L. F. Price

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

This project reported herein was conducted pursuant to a contract from the New Jersey Department of Education, Division of Vocational Education and Career Preparation. It was funded under Section 131 of Public Law 94-482.

Project Duration: JULY 1, 1980
Beginning Date

JUNE 30, 1981
Ending Date

The Contractors undertaking this project were encouraged to express fully their judgments in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official funding agency positions or policies.

TABLE OF CONTENTS

CHAPTER I.....1
Problem Statement.....5
Purpose of Study.....6
Definition of Terms.....7
Related Literature.....9
Nontraditional Program Areas.....9
Business and Office Practice.....9
Health Occupations.....10
Home Economics.....10
Background Information.....12
Parental Influence.....12
Socio-economic Level.....14
Experiences.....14
Personality.....14
Aptitude.....15
Aptitude.....16

CHAPTER II.....18
Procedures Used.....18
Selection of Schools and Students.....18
Instruments.....20
Data Collection.....22
Preliminary Findings.....23

REFERENCES.....28

APPENDIX A. Sample Letter.....31

APPENDIX B. Reply Sheet.....32

APPENDIX C. Selection of Students.....33

APPENDIX D. Background Information.....35

APPENDIX E. Permission Forms.....36

CHAPTER I

Throughout history, tasks and roles have been assigned to men or women on the basis of that which each seemed best equipped to handle. Those tasks which required strength were done by men, and those which related to child bearing and the home were the responsibility of women. Vocational education developed along these traditional lines in order to meet the needs which were reflected by the society. Manual training programs were designed to meet the needs of a growing industrial nation and to train men in the skills which they needed to be productive workers. Women's needs were addressed in home economics programs which were designed to provide women with the skills needed for efficient homemaking. The trend toward a decentralization of work away from the home meant that families were scattered during the day to schools and factories. Girls no longer gained the skills they needed for their roles as homemakers from their mothers, and boys could no longer learn the necessary trade skills from their fathers. Thus formal education became increasingly important in the preparation of people for jobs and home life, and vocational education in the United States developed along sex appropriate lines.

This traditional approach to vocational education met the needs of the people during the past century, and the first half of this century. However, the evolutionary process of society has continued, and the sex appropriateness of specific jobs and education is becoming obsolete. Changes have taken place in our society which have resulted in changes in the world of work and in a need to reexamine the goals of vocational education as they relate to sex appropriateness of course assignment. Physical strength is no longer a primary requirement for most jobs, and the home production of goods and services has largely been replaced by business and industry. Women have increasingly entered the paid labor force, thus causing a blurring of traditional roles and changes in family functions. As a result there has been an intense interest in the needs of women in all of the areas of vocational education as the schools try to prepare women adequately to enter a wide variety of occupational areas. It is important to make these changes not only to meet the changing needs of women, but also to meet the needs of industry for skilled and productive workers.

However, it must be acknowledged that the changes in society are also impacting on men. In the past men have also been limited in their career choices to those areas which were considered appropriate for males. Yet recent Civil Rights legislation (1972) and mandated affirmative action programs are increasing pressures on industry to hire men for traditionally female employment areas. This is especially true in the area of business and office practices. Men who express interest in jobs which are related to the helping

careers such as health occupations at a vocational level face the same stigmas and social pressures which women face when they select nontraditional careers. These pressures are also felt by men who choose careers such as those represented by the home economics related occupations and by cosmetology.

Recent studies (Maccoby and Jacklin, 1974; and Durkin, 1972) of differences do not find differences in skills between men and women which are great enough to cause the dichotomy of career areas to specific sexes. Durkin reports on a series of studies done at the Human Engineering Laboratory of the Johnson O'Connor Research Foundation which involved the measurement of twenty-two aptitude and knowledge areas. There were no sex differences in fourteen of the areas, women were found to excel in six, and men excelled in two. The study concluded that, "There is no field which can, with absolute assurance, claim to be the exclusive domain of either sex." In fact, Maccoby and Jacklin conclude that the differences seem to be greater within the sexes than between the sexes.

Much has been written about the negative effects of sex role stereotyping on women. However, there are also some indications that the forcing of people into preceived sex appropriate roles has had some negative effects for men as well. For example, Gray (1957) found that males who scored high in sex stereotyped behaviors and attitudes also scored higher on measures of anxiety. Dweck and Bush (1976) and Farrell (1974) found that it is more acceptable for females to express fears, anxieties, tenderness, and weaknesses than males. Men, as well as women, have been found

to experience conflict between their ideal self and the stereotyped characteristics generally associated with their sex (Peck, 1976). It seems to be more difficult for males than females to unlearn stereotyped behaviors (Mussen, 1962; Farris, 1977). During the elementary years, males are referred to clinics for psychological and behavioral problems with greater frequency than females (Rosenkrantz, et. al., 1968). These elementary school years seem to be a time when the impact of stereotyping causes conflict in young males related to self image and sex appropriate behavior.

Some of the negative effects have specific implications for vocational education. For example, there are indications that pressures to conform to a sex role are stronger for men than for women (Rosenkrantz, et. al., 1968; Whiting, 1963; and Mussen, 1962). If this information is coupled with the research which suggests that there is a direct connection between perceived sex roles and career choice (Hewitt, 1975; Beur, 1974; and Looft, 1971) it is easy to suggest that career selection will continue along specific sex lines as long as the pressures to conform to a stereotype are strong.

Concern for the limitations which have been placed on people because of the differences in the treatment of boys and girls has been addressed in several laws. Discrimination on the basis of sex in educational programs or activities which receive federal financial assistance was prohibited by Title IX of the Educational Amendments of 1972. Title IX is aimed at all educational programs. Sex discrimination is defined in this law as "any action which

limits or denies a person or a group of persons opportunities, privileges, roles, or rewards on the basis of their sex." Because of the importance of this topic for vocational education - one of the most sex segregated areas within the educational system - the elimination of sex bias and sex stereotyping has been designated as a priority area for vocational education in the Educational Amendments of 1976. The Educational Amendments of 1976 define sex bias as "behaviors resulting from the assumption that one sex is superior to the other." Since sex role perceptions are acquired characteristics (Women on Words, 1972) it is not surprising that the educational system in the United States has been charged with the task of attempting to eliminate the biases which unnecessarily restrict people to limited career choices.

Problem Statement

Mandates, good intentions, and the knowledge that a problem exists are not enough to bring about change. People's values are deeply involved in stereotyping. If people are to conduct themselves in new ways, they must go through a process of reeducation in order to build a base of understanding relating to the acceptance of new values. Part of this process of reeducation must include an understanding of the underlying factors which work to influence students' choices in career areas. Much work has already been started to address this issue. Course titles, course descriptions, and educational materials have been revised. Research has been conducted to study some of the concerns in this area. However, most of the work which has been done has been related to women's

needs. Very little work has been done on the reverse situation; the studying of the needs and responses of men in the subject areas which have been considered traditionally female. A recent study by Vetter, et. al. (1979) which was a review of the factors which influence nontraditonal enrollments in vocational education found only three studies which related specifically to males in nontraditional vocational programs. It would appear then, that the study of males in nontraditional vocational areas is fertile ground for research.

How then are male options in vocational education increased? A base of knowledge about the characteristics of the students in vocational education must be developed. Comparisons have been made between students who are enrolled in vocational and other educational programs, between males and females within vocational education, and between females enrolled in traditional and females enrolled in nontraditional vocational programs. It is time now to compare the male students who elect nontraditional programs with those students who elect traditional programs to identify similarities and differences. The identification of these characteristics can be used to provide improved career counseling which in turn can help to increase career options for males. This should be a step forward in the elimination of the sex linked images of specific vocational programs.

Purpose of Study

It is the goal of this project to identify some of the

characteristics of male students who elect nontraditional career related programs in vocational education at the secondary level. The specific characteristics which will be examined are personality types and aptitudes. These characteristics, when identified, may help teachers, who are experienced in working predominately with one sex, to understand all of their students better and thus to work more effectively with them. Recruitment methods might also be changed, and career counseling made more meaningful for each individual student.

In order to eliminate the negative effects of stereotyping, it must first be understood. The purpose of this study is to contribute a piece of the information base upon which can be built a better understanding of the students with which vocational education deals.

Specifically, this study attempts to identify some of the aptitude and personality characteristics of male students who have enrolled in vocational subject areas which have been by tradition and enrollment, primarily female subjects. For this preliminary study the areas are home economics related occupations and health occupations. Cosmetology and business and office practice will be dealt with at a later date.

Definition of Terms

1. Nontraditional Student refers to male students who have elected a vocational program which has a predominately female enrollment. In the total study this refers to home economics related occupations, health occupations, cosmetology, and business and office practice.

2. Traditional Student refers to a male student who elects a vocational program which has a predominately male enrollment or a female student who elects a vocational program which has a predominately female enrollment.

3. Aptitude is the skills and abilities which students need to help them succeed in the world of work. The specific aptitudes which will be measured in this study include: verbal reasoning, numerical ability, abstract reasoning, clerical speed and accuracy, mechanical reasoning, space relations, spelling, and language usage.

4. Personality Type as used in this study refers to the personality types related to vocational preferences as described by Holland (1973). These include realistic, intellectural, social, conventional, enterprising, and artistic. These personality types can be measured by the Strong Vocational Interest Blank.

Related Literature

Intense interest has been focused on the inequities within the vocational education system related to the topics of sex bias and sex stereotyping since the passage of the Educational Amendments of 1976. This legislation states that,"It is also the purpose of this part to authorize Federal grants to States to assist them--(3) to develop and carry out such programs of vocational education within each State so as to overcome sex discrimination and sex stereotyping in vocational education programs (including programs of homemaking), and thereby furnish equal educational opportunities in vocational education to persons of both sexes..."

Nontraditional Program Areas

Interest in this topic has resulted in a large number of studies related to sex bias and sex stereotyping. While most of the work which has been done has been related to the needs of women, several studies have focused on men in nontraditional program areas.

Business and Office Practice

Hurd and Allred (1978) studied the interests in and the attitudes toward secretarial positions for males of 360 eleventh grade students in Rhode Island. They found that the students were either undecided about their feelings towards males as secretaries

or were slightly in favor of males as secretaries. However, most of the male respondents showed a lack of interest in actually becoming secretaries. This seems to confirm a study done by Burlin (1976) which found that innovative or nontraditional career choices were made significantly more often as an ideal aspiration than as a real aspiration.

Dixon (1976) sought to determine whether office occupations courses can appeal to men if the curriculum is changed to better attract and train them. Of the respondents, 75% showed interest in the area, yet only one of the respondents had been counseled to consider nontraditional enrollment.

Health Occupations

An interesting study conducted in 1970 by Auster and Auster related to the recruitment of men into the nursing field. A cross-sectional attitude survey of both beginning and advanced nursing school students recommended the following recruitment strategies for men: recruiting in lower socioeconomic areas, small towns, and in rural areas by male recruiters; appeal to men by stressing professionalism, leadership, administration, science, and technology. It is interesting to note that this appeal is different than the usual appeal toward women entering this field or "helping" profession. Perhaps this is a reflextion of the time period in which the study was conducted.

Home Economics

A few studies in home economics have dealt with the place of men in the curriculum. However, th[illegible]tudies seem to deal with the curriculum rather than the students themselves. Kohlmann (1975) used research findings and theory related to the characteristics

of the adolescent males to develop a teaching guide for young men in home economics topic areas. Weis (1979) evaluated curriculum materials which are used in home economics programs and found them to be sex stereotyped.

Other writings which deal with men in nontraditional vocational areas tend to be based on informal observations and experiences and relate to methods of recruitment and curriculum adaptation (Smith, 1975; Terrone, 1978), or have used men as a base of comparison from which to study the characteristics of women. Some studies have taken a broad approach to looking at vocational education and to career development, and thus include both males and females in their investigations (Richards, 1979; Sawyers, 1978; and Indiana State Board of Vocational and Technical Education, 1977).

Thus when looking at men in nontraditional vocational areas, it becomes necessary to look at a wide variety of sources and try to extrapolate information from general research about career choice, from research which has used men as a basis for compairson for the study of women, and from research related to sex differences, as well as the few types of studies just discussed. All of these types of research have been used to provide the theoretical basis for the hypotheses which will be used in this study.

This study is concerned with the differences in the characteristics of males in the nontraditional and in the traditional vocational programs in New Jersey public schools. Therefore, the research discussed in the following section will be confined

to those characteristics under study. The discussion will not include the effectiviness of specific guidance or recruitment techniques, the societal causes of stereotyping, or the effectiviness of specific curriculum content. It will be concerned with two specific areas of interest: personality characteristics as defined by vocational interests, and aptitude.

Background Information

Numerous studies at different educational levels have focused on the factors which influence career choices. A number of specific items have been identified as being relevant to career choice. This includes parental influence, occupation and education; family income level; and the student's work experiences.

Parental Influence

The effect of parental influence on career choice has been documented by a number of researchers. Many of these studies relate to women (Ginsberg, 1966; Almquist, et. al., 1970; and Dane, 1976) However, males are also influenced in their career choices by their parents. Lungstrum (1973) found that the fathers' occupations affected sons' occupational choices, and that male students were found to be more independent of friends' influence regarding occupational preferences and choices than were females. DeWinne, et. al. (1978) studied 2225 entering freshmen at North Texas State University to test Holland's hypothesis that parents' personality types foster similar offspring personality development. The results showed a strong recurring paternal influence in offspring personality development.

The personality types were dtermined by classifying parental occupations according to Holland's three-letter codes. The findings seemed to indicate that paternal influence was much stronger than maternal influence, especially with their sons. Holland (1973) had earlier studied the parental influences on the vocational interest development in adolescent males and concluded that "the greater the number of positive vocational interests the father has, the greater the number of son's total interests and the more likely the son's interests will be in feminine vocational areas." Thus a positive atmosphere toward a wide variety of career choices on the part of the father would seem to be correlated with the possibility of nontraditional vocational selection on the part of the sons.

Other studies support the relationship of parental influence and career choice. Church (1974) compared the career objectives of Wyoming secondary students with parental occupations and concluded that, "There is more identification in the boys' career objectives with their fathers' occupations (both classification and career clusters) than between the girls' and their mothers'." Sawyers (1978) and Richards (1979) both found that role models, including parents, were influential in student career plans.

The theme which seems to repeat itself throughout these studies is the large role which parents play in the career choices of their offspring.

Socio-economic Level

A study of social class and the sex stereotyping of occupations by Albrecht (1976) reported a number of interesting findings. He used two indicators of social class: 1. the educational level of the respondent, and 2. the income level of the head of the household in the family. When these two indicators were looked at separately, the results were quite different. Educational level was significantly related to the degree of sex-stereotyping for each of the 15 occupations studied. The lower the respondent's education, the more likely he or she was to indicate that the occupation listed was only or more suitable for men or only or more suitable for women. The higher one's education, the higher the probability of reporting that the occupations were suitable for both men or for women. However, when income was treated as the indicator of social class, the results did not indicate a statistically significant difference in the degree to which people sex-stereotype occupations.

Experiences

Experiences have been found to have a primary influence on career plans. Richards (1979) studied secondary students' views on occupational sex-stereotyping and found that experiences, including course experiences and work experiences, were stated most often as an influential factor in choosing a career. Research in Indiana in 1976 by New Educational Directions found that 44% of the respondents indicated that experience in courses and work experience were factors which influenced traditional career choice, while 59% indicated experiences as being related to

nontraditional career choice. Thus it would seem that nontraditional work experiences would be related to the selection of a nontraditional career choice and that traditional experiences would be related to the selection of a traditional career choice.

Personality

Holland (1959) proposed a theory of personality types based on the idea that vocational interests are an expression of personality. He further suggested that vocational preferences could be used to determine personality types. Therefore, interest inventories could also be used as personality inventories. This theory is based on four assumptions (Holland, 1973):

> 1. In our culture, most persons can be categorized as one of six types: realistic, investigative, artistic, social, enterprising, or conventional. [p. 2]
>
> 2. There are six kinds of environments: realistic, investigative, artistic, social, enterprising, and conventional. Each environment is dominated by a given type of personality, and each environment is typified by physical settings posing special problems and stresses. For example, realistic environments are "dominated" by realistic types of people--that is, the largest percentage of the population in the realistic environment resembles the realistic type. [p. 3]
>
> 3. People search for environments that will let them exercise their skills and abilities, express their attitudes and values, and take on agreeable problems and roles. Realistic types seek realistic environments, social types seek social environments, and so forth. p.4
>
> 4. A person's behavior is determined by an interaction between his personality and the characterisitcs of his environment. If we know a person's personality pattern and the pattern of his environment, we can, in principle, use our knowledge of personality types and environmental models to forecast some of the outcomes of such paring. Such outcomes include choice of vocation, job changes, vocational achievement, personal competence, and educational and social behavior. [p. 4]

Holland further suggests that in order to estimate a person's personality pattern that a person's scores can be used on selected scales from interest and personality inventories such as the Strong Vocational Interest Blank. There also seem to be sex differences in relation to the scoring. These differences have resulted in the inclusion of a masculinity-femininity scale on the profile reports of these interest inventories. Because of the characteristics associated with specific occupations and the relationship of personality characteristics to these occupations (eg., the social personality type relates closely to vocational preferences such as those represented by home economics related occupations) it might be suggested that the male students who elect this and other nontraditional vocational areas - those which are perceived to be related to female characteristics would have different personality traits than those male students who elect traditional programs.

Aptitude

Aptitude is defined by Webster as the capacity for learning. Bennett, et. al. (1974) define aptitude as a person's ability to acquire knowledge or skills. Aptitudes vary from person to person and have been linked to the skills which are necessary to successful performance in specific vocational areas. For example, success in business and office practice has been related to high scores in verbal reasoning, numerical ability, clerical speed, accuracy, and spelling; success in machine shop has been related to aptitude in verbal reasoning, numerical ability, and

abstract reasoning; successful performance in cosmetology, drafting and data processing correlate with high scores in space relations (Bennett, et. al., 1974) It would appear than that students in different vocational preparation areas would score differently on aptitude tests.

A discussion of aptitude could not be complete without a discussion of sex differences related to specific aptitudes. Maccoby and Jacklin (1974) in a review of research on sex differences found that girls have greater verbal ability, and boys excel in visual-spatial ability and mathematical skills. Durkin (1972) looked at 22 aptitude and knowledge areas and found that there were no sex differences in 14 of the items measured, but that men excelled in grip and structural visualization (visual-spatial ability). Grip was related to skills needed by construction workers, athletes, and weight lifters. Structural visualization seems central to the technical/scientific professions. Women were found to excel in Graphoria (a measure of clerical speed and efficiency), Dexterity, Ideaphoria (a measure of the rate of idea-flow), Observation, Silograms (the ability to easily form associations between known and unknown words), and Abstract Visualisation (the theoretical complement of Structural Visualization). It is suggested by Durkin that, "Neither a girl nor a boy ought to dismiss peremptorily from consideration any endeavor solely because it has been the preserve of the opposite sex." [p. 3] Both Maccoby and Jacklin, and Durkin conclude that there seems to be a greater difference within each sex than between the sexes in the ability to acquire knowledge or skills.

CHAPTER II

Procedures Used

Selection of Schools and Students

A variety of methods was used to locate the schools which participated in this study. Initially letters (see Appendix A) were sent to each of the vocational schools in the state and an additional selection of 60 comprehensive schools inviting them to participate in the study. Some of these comprehensive schools were identified by a study done by the Office of Civil Rights in 1979 as having some enrollment of nontraditional male students in one of the following subject areas: home economics related occupations, business and office practices, cosmotology, or health occupations. Other schools were selected to reflect the diversity of types and locations of schools in the state. Of the initial group of schools contacted only eight agreed to participate and had an enrollment of nontraditional male students. Because of the low numbers of students involved additional attempts to locate schools were made. State department personnel were contacted for suggestions of schools which might have students, as were the county career coordinator offices and private vocational schools. These efforts resulted in the addition of three more schools to the list of participating districts.

Originally, a minimum of twenty male students enrolled in each of the four subject areas was to be identified for testing. An equal number of female students in these same programs was to be tested as was

an equal number of male students from the same school to be tested in order to form a basis for comparison. This was to be done in order to see if the nontraditional males more closely resemble students of their own sex, or if they more closely resemble the students in their chosen career areas. It was felt that if there is validity to the research which suggests a linkage of personality types and aptitude to career choice and job performance, than the scores of the nontraditional male students on standardized measurement of these characteristics should more closely resemble the traditional female students than the traditional male students. Nontraditional female students were not included in this study because it was felt that the inclusion of this group would broaden and change the focus of the study away from the nontraditional male student.

Unfortunately the number of students located does not begin to reach the original desired number. The reasons for this vary. The records on the numbers of nontraditional male students in these programs seem to be highly inaccurate. In a number of cases the enrollment reported to the researcher was based on the previous year's pre-registration, and by spring the majority of these students (if any) could not be found in the courses. Either the students had changed their minds before the courses started, or had dropped out shortly after the courses began. In one case, the Wilfred Beauty Academy, the reported male enrollment ranged up to as high as $\frac{1}{4}$ of the students, however, these turned out to be older students, 20+, and therefore not a part of the group under study. Discussions with older students indicated that people may be more willing to

seriously consider a nontraditional career if they are more mature and have had some experiences with the realities of the work world. Difficulties in interpretation also created problems in the numbers of students involved. One school which was willing to participate had no nontraditional male students enrolled. Business and office practice was interpreted to mean males enrolled in accounting or business law rather than secretarial practice. It was felt that male students enrolled in accounting or business law courses could not be considered nontraditional male students, and thus were not tested. (See Appendix C for the instructions on the selection of students.)

The following numbers of students with usable instrument returns were found in each category: health occupations - 14 females, 16 males; home economics related occupations - 22 females, 22 males; cosmetology - 1 female, 0 males; business and office practices - 2 females, 4 males. Because the testing took place over a two day period in some of the schools, several students did not complete all of the instruments and thus were not counted in these figures. Scheduling conflicts also caused three of the schools to withdraw for the spring testing time. However, all three schools expressed a willingness to participate in the fall.

It is felt that the number of students listed here is too low to provide valid statistical results. Thus the findings which are reported must be considered preliminary only. An update of this report with more comprehensive results based on additional students will be filed after efforts have been made in the fall to locate more students in each category.

Instruments

Each student was asked to fill out a background information sheet which was designed to elicite information about items which have been

identified by research as being related to career choice: family background, education, and experiences. (See Appendix D) Each student was also asked to take an interest inventory and an aptitude test.

Strong Vocational Interest Blank

The first standardized instrument is an interest inventory, the Strong Campbell Interest Inventory (SCII). This instrument has been selected because of its usability to measure personality types related to vocational preferences as defined by Holland. These personality types are: realistic, intellectual, social, conventional, enterprising, and artistic.

The instrument is simply a list of occupations. It includes 6 general occupational themes, 23 basic interest scales, 124 occupational scales, and 2 special scales. Students are asked to indicate whether they would like each kind of work listed by marking "L" for like, "I" for indifferent, and "D" for dislike on an answer sheet.

Differential Aptitude Test

The second instrument is an aptitude test, the DAT, or Differential Aptitude Test. This test is designed to measure verbal reasoning, numerical ability, abstract reasoning, clerical speed and accuracy, mechanical reasoning, space relations, and spelling and grammar. It also gives a combined score which can be interpreted in a manner similar to an IQ score. The advantages of this test are that the mathemathics is nonverbal, the abstract reasoning uses pictures, and the terminilogy is simple thus minimizing the effects of language skills on the test results. The items which this

test measures have been linked to sex differences in previous studies. The norm for this test has been separated by grade level and by sex. The reliability coefficients on the subtests range from .87 to .94. The validity reports are broken down by section. One negative aspect of the instrument is the section on mechanical reasoning. This section is highly sex stereotyped which may have a negative influence in any study which is related to nontraditional career choices! It is interesting to note that this section of the test has been found to be the least reliable. Thus when it became necessary to shorten the time allotted for testing because of school scheduling the section on mechanical reasoning was dropped.

Data Collection

These instruments were administered by the researcher and the guidance counselors in each of the participating schools. The guidance counselors in each school set up the time for the testing and handled the participation permission slips for the parents and the students (See Appendix E). Each student was assigned an identification # by the, guidance department and only the numbers were given to the researcher. (See Appendix C.)

After the collection of the data, the instruments were scored, coded and analyzed. The scores were also returned to the schools for future career guidance with the participating students.

Preliminary Findings

A simple statistical overview follows which is based on the information provided by those students who have been tested up to this point. A more comprehensive report of the findings will be filled after additional students have been located and tested. Because of the low number of students in each cell, these results cann not be considered generalizable to any larger population at this time, and are presented only to provide a base for discussion.

This section of the report is based on instrument returns from 95 students - the 81 students previously mentioned and 14 male students who are enrolled in traditional vocational programs.

Group Description.

As a whole, this group of 95 students turned out to be somewhat below the average of the general population in most of the aptitudes tested. Considering that the average percentile score for each category if 50, note the following mean percentile scores for each category on the Differential Aptitude Test.

Aptitude	Mean	Standard Deviation
Verbal Reasoning	30.73	20.74
Numerical Ability	35.56	23.99
Verbal Reasoning + Numerical Ability	30.52	22.06
Abstract Reasoning	41.29	25.02
Clerical Speed	55.13	29.86
Mechanical Reasoning	34	26.29
Space Relations	35.98	23.97
Spelling	39.97	28.04
Language Usage	36.26	24.73

These low scorec can partially be explained by the fact that in one of the schools, from which 26 students participated, the average reading level is at about the fifth grade level, and this school has a large student population for whom English is a second language.

For each of the personality classifications reported on the Strong Cambell Interest Inventory profiles, the following figures represent the mean and the standard deviation of all of the students for each category.

Personality Category	Mean	Standard Deviation
Realistic	44.96	10.92
Investigative	38.26	10.33
Artistic	40.80	10.21
Social	41.85	11.66
Enterprising	46.91	9.49
Conventional	44.56	10.39

Family Background

The family income as reported by the students falls between $15,000 and $20,000. However, this figure is open to question since it was the one question which was most frequently left blank. A large number of the students said that they did not know their family income.

The mothers' mean educational level was slightly less than that of a high school graduate at 11.8 years, and the fathers' mean educational level was slightly more at 12.1 years of schooling. Eight percent of the mothers held jobs which could be considered as nontraditional for their sex, eg. factory foreman, while only one of the fathers was reported to have a job which could be considered as nontraditional.

Other Factors

Sixty percent of the students stated that they had at some time taken an introductory/exploratory vocati al course. Twenty one percent listed at least one job experience which could be considered as nontraditional for their sex, eg. several of the boys listed day care worker under job experiences.

Specific Groups

An interesting pattern starts to emerge if a breakdown of the specific groups of students is looked at. (Only five groups are included at this time because of the numbers of students in these groups.)

	Aptitudes								
Female - Health Occ.	VR	NA	VR+ NA	AR	CS	MR	SR	SP	LU
Mean	20.86	33.17	25.29	29.31	56.79*	50	22.67	36.29	18.91-
Standard Deviation	18.82	29.71	23.87	16.40	33.72	14.14	18.68	29.45	18.71
Male - Health Occ.									
Mean	22.19	27.93	20.36	29.55	37.44*	17.50-	21.43	23.93	20.91
Standard Deviation	19.83	18.28	20.12	21.83	29.01	3.54	15.83	26.18	15.43
Female - Home Ec.									
Mean	34.73-	42.05	35.23	48.91	55.18*	33.44	35.95	44.48	45.48
Standard Deviation	20.68	27.89	23.37	22.99	26.31	27.46	22	31.09	23.18
Male - Home Ec.									
Mean	37.27	38.82	36.14	50.77	56.41*	29.60-	46.91	39.05	48.95
Standard Deviation	22.08	22.01	22.36	28.28	28.62	24.64	26.04	25.28	26.08
Traditional Male									
Mean	32.93	32.21	29.71	40.23	57.07*	35.29	39.36	42.57	28.21-
Standard Deviation	20.51	21.86	21.41	23.45	29.61	31.68	25.52	19.91	20.06

* = highest score for the group, - = lowest score for the group.

Note that the highest mean aptitude score for every group of students is Clerical Speed and Accuracy. Another interesting pattern is that the scores for both of the health occupations groups are considerable lower than the scores for the other groups. However, this group is primarily made up of students from the school previously mentioned where the students have poorly developed English language skills. For this reason it is important to look at the highest and lowest score categories rather than the specific numbers in each category.

	Personality					
Holland Theme	R	I	A	S	E	C
Female - Health Occ.						
Mean	34.9	44.71	40.29	48*	45.79	48*
Standard Deviation	5.2	10.47	9.43	9.54	9.35	13
Male - Health Occ.						
Mean	44.13	42.56	41.75	43.38	43.63	45.5*
Standard Deviation	11.66	12.14	11.43	15.66	10.83	12.22
Female - Home Ec.						
Mean	38.64	35.09	45	44.91	49.59*	46.41
Standard Deviation	8.93	8.76	11.11	10	8.86	9.83
Male - Home Ec.						
Mean	52.95*	37.41	41.77	39.91	50.82	45.18
Standard Deviation	7.4	8.76	9.48	12.52	9.02	7.4
Traditional Male						
Mean	55.14*	34.29	32.43	31.57	43.43	36.71
Standard Deviation	6.77	9.47	4.43	8.6	8.49	7.12

* = highest score for the group, R = Realistic, I = Investigative, A = Artistic, S = Social, E = Enterprising, C = Conventional.

In the Health Occupations area, both the males and the females scored highest in the Conventional category, although the girls also had an equally high score in the Social category. The expected result for this occupational area is that the students would have the Investigative category as one of the highest.

In the Home Economics category both the males and the females had high scores in the Enterprising category, however, the males had higher scores in the Realistic cagegory. The expected high cagegory was Social. It is interesting to note that the highest category for the male students enrolled in traditional vocational programs was also Realistic.

No attempt will be made to explain these results until further data becomes available. However, some interesting comments were made by teachers and students in informal conversations before and after the testing. These comments may in part help to explain the results.

"I took this course because I want to have my own business and be my own boss." - male student enrolled in a home economics program.

"Students sometimes elect to come here (the vocational school) because they feel that they will get a better education than they would at the comprehensive school, rather than because of a specific vocational interest." - guidance counselor.

"I have already been accepted at med. school." - male student enrolled in a health occupations program.

"This course should help me earn money part time after I am married." - female student in cosmotology.

"I thought it would be fun." - male student in home economics program.

REFERENCES

Albrecht, S. "Social Class and Sex-Stereotyping of Occupations." Journal of Vocational Behavior. 1976, 9, 321-328.

Almquist, E. and Angrist, S. "Career Salience and Atypicality of Occupational Choice Among College Women." Journal of Marriage and the Family. 1970, 32 (2), 242-249.

Auster, D. and Auster, N. "Men Who Enter Nursing: A Sociological Analysis." Canton, NY: Saint Lawrence University, 1970. (Abstract in Resources in Education, text not available in microfiche.)

Bennett, G.K., and Seashore, H.G., and Wesman, A.G. Differential Aptitude Tests. Fifth Edition Manual. NY: The Psychological Corporation, 1974.

Beur, A. "Doctor, Lawyer, Household Drudge." Journal of Communications. 1974, 142-145.

Burlin, F. "The Relationship of Parental Education and Maternal Work and Occupational Status to Occupational Aspiration in Adolescent Females." Journal of Vocational Behavior, 1976, 9, 99-104.

Church, O. Career Objectives of Wyoming Secondary Students Compared With Parental Occupations. WY: Wyoming State Department of Education, 1974.

DeWinne, R.F. and Overton, T.D., and Schneider, L.J. "Types Produce Types - Especially Fathers." Journal of Vocational Behavior. 1978, 12, 140-144.

Dixon, N. "Office Occupations Curriculum for the Male Community College Student." Master's Thesis, University of San Fransico, 1976, 39-53, 108.

Durkin, J. The Potential of Women. Boston, MA: Johnson o'Connor Research Foundation Human Engineering Laboratory. 1972, Bulletin #87.

Dweck, S. and Bush, E. "Sex Differences in Learned Helplessness and Differential Debilitation with Peer and Adult Evaluators." Developmental Psychology, 1976, 12, 863.

Eliminating Sex Discrimination in Schools: A Source Book. Raleigh, NC: Department of Public Instruction, 1975.

Farris, C. Expanding Adolescent Role Expectations. NY: New York State College of Human Ecology, Cornell University, 1977.

Farrell, W. The Liberated Man. NY: Bantam Books, 1974.

Ginsberg, E. and Associates. Life Styles of Educated Women. NY: Columbia University Press, 1966.

Gray, S. "Masculinity-Feminity in Relation to Anxiety and Social Acceptance." Child Development, 1957, 28, 2, 203-214.

Hewitt, L. "Age and Sex Differences in Vocational Aspirations of Elementary School Children." Journal of Social Psychology. 1975, 96, 173-177.

Holland, J. "A Theory of Vocational Choice." Journal of Counseling Psychology. 1959, 6, 35-44.

Holland, J. "A Theory of Vocational Choice." Vocational Guidance Quarterly. 1963, 232-239.

Holland, J. The Psychology of Vocational Choice: A Theory of Personality Types and Model Environment. Waltham, Mass: Blaisdell, 1966.

Holland, J. Making Vocational Choices: A Theory of Careers. NJ: Prentice-Hall, 1973.

Hurd, H. and Allred, H. "Interest in and Stereotyping of Secretarial Positions for Males." Vocational Guidance Quarterly. 1978, 26, 3, 255-259.

Indiana State Board of Vocational and Technical Education. Sex as a Determinant in Vocational Choice. Final Report. Crawfordsville, Ind: New Educational Direction, 1977.

Kane, R., et. al. A Study of the Factors Influencing the Participation of Women in Nontraditional Occupations in Post Secondary Area Vocational Training Schools. Arlington, VA: RJ Associates, Inc., 1976.

Kohlmann, E. Home Economics for Young Men: A Teaching Guide. Ames, Iowa: Iowa State University Press, 1975.

Looft, W. "Sex Differences in the Expression of Vocational Aspirations by Elementary School Children." Developmental Psychology. 1971, 361.

Lungstrum, R. Selected Factors Related to Occupational Preference of High School Students Enrolled in Vocational Education Programs in the Wichita Public Schools. Urbana, IL: Illinois University, Department of Vocational and Technical Education, 1973, 174-181.

Maccoby, E. and Jacklin, C. The Psychology of Sex Differences. Stanford: Stanford University Press, 1974.

Mussen, P. "Long-term Consequents of Masculinity on Interests in Adolescence." Journal of Consulting Psychology. 1962, 26, 435-440.

Peck, J. "The Male Sex Role: Definitions, Problems and Sources of Change." Journal of Social Issues. 1976, 32, 3, 155-164.

Richards, D. Secondary Students' Views on Occupational Sex Stereotyping. Bloomington, IN: Vocational Education Information Services, Indiana University, 1979.

Rosenkrantz, P. and Bee, H. and Vogel, S. and Boverman, I and Boverman, D. "Sex-Role Stereotypes and Self-Concepts in College Students." Journal of Counsulting and Clinical Psychology. 1968, 32, 287-295.

Sayers, B. Sex Stereotyping - Analysis of Students Enrolled in Vocational Programs in Indiana. Indiana State Board of Vocational and Technical Education, 1978.

Vetter, L. , et. al. Factors Influencing Nontraditional Vocational Education Enrollments: A Literature Review. Columbus OH: The National Center for Research in Vocational Education, 1979.

Weis, S. "Examinations of Home Economics Textbooks for Sex Bias." Home Economics Research Journal. 1979, 7, 3, 147-162.

Whiting, B. and Pope, C. Six Cultures: Studies of Rearing. NY: John Wiley and Sons, 1963.

Women on Words and Images. Dick and Jane as Victims. Princeton, NJ: Women on Words and Images, 1972.

APPENDIX A

March 3, 1981

Dear

The purpose of this letter is to enlist your cooperation in a research project which will attempt to identify some of the positive factors influencing the career choices and aptitudes of eleventh and twelfth grade male students who have elected nontraditional vocational programs. The results of this study will help to improve the career guidance and recruitment of nontraditional students.

In each school which participates the guidance department will be asked to administer a short background information sheet and two standardized instruments, the Strong Campbell Interest Inventory and the Differential Aptitude Test to eleventh and twelfth grade male students enrolled in business and office occupations, cosmetology, health occupations, and home economics related occupations; to an equal number of female students in these same subjects; and to an equal number of male students who are enrolled in traditional vocational programs. The testing materials will be provided and scored at no charge to the school. The time needed for the testing is approximately three class periods. The test results will be returned to the guidance department where the information can be used to provide additional career guidance information for each participating student.

This is a part of a doctoral dissertation to be submitted to Rutgers' the State University. The advisor for the project is Dr. Charles Drawbaugh, Professor, Department of Vocational Technical Education. Funding is being provided by the New Jersey Department of Education, Division of Vocational-Technical Education and Career Preparation.

Because of the limited number of students in the population under study, your cooperation is important to the success of the project. Could you please return the enclosed participation reply slips as soon as possible?

Thank you.

Sincerely,

Doris L. Dopkin
Instructor

APPENDIX B

Reply Sheet

_____ We will be able to participate in the research project.

We have the following number of 11 and 12 grade students enrolled in:

_____ Business and Office Procedures

_____ Health Occupations

_____ Home Economics Related Occupations

_____ Cosmetology

_____ Sorry we will not be able to participate in the research project.

School _____

Address _____

Phone # _____

Guidance person to whom correspondence should be directed

_____

Return in the enclosed envelope by March , 1981 to:

Doris L. Dopkin
Douglas College
Rutgers University
New Brunswick, NJ 08903

APPENDIX C

Selection of Students

The group of students under study is 11th and 12th grade male students who elect a vocational program in business and office procedures, health occupations, home economics related occupations, or cosmetology. Please identify these students first. Then select at random an equal number of female students who have elected these same programs; and an equal number of male students in the same grades who have chosen traditionally male vocational programs such as agriculture, trade and industry. etc. These three groups will form the total number of students from your school to be tested.

Example: Assume that you have identified the following number of male students in nontraditional programs.

Health Occupations	1
Cosmetology	0
Home Economics Related Occupations	4
Business and Office Procedures	6
Total	11

You would then select at random female students from the same programs: 1 from health occupations, 0 from cosmetology, 4 from home economics related occupations, and 6 from business and office procedures. Then randomly select 11 male students from traditional vocational areas. This would total 33 students identified for testing.

Protection of Student Identification

For the purposes of this research project it is important that the students remain anonymous. One way to do this is for you to assign each student a number. Only these numbers will be used on the data which is handed over to me. You keep a record of the names and numbers so that, if you wish, you can use the returned data for career counseling with the individual students.

However, I will still need a method of identifying the group to which each student belongs. Therefore I would like you to assign the numbers in the following manner. All students are to receive a four digit code number. The first digit will indicate sex, the second will indicate program, and the third and fourth will identify the individual students.

A. First digit -

Assign all <u>males</u> the number 1 as the first digit.
Assign all <u>females</u> the number 2 as the first digit.

APPENDIX C (CONT'D)

B. Second digit -

Assign all health occupations students the number 3 as the second digit.
Assign all cosmetology students the number 4 as the second digit.
Assign all students in home economics related occupations the number 5 as the second digit.
Assign all business and office procedures students the number 6 as the second digit.
Assign all students from traditionally male vocational programs the number 7 as the second digit.

C Third and fourth digit -

Assign each student his/her own two digit number which will become the third and fourth numerals in this sequence. This will also help you identify the students when their test results come back.

eg. Using the examples given above, the students identified for testing would be given the following code numbers.

The first student identified is a male in health occupations.

Sex	Program	Individual #		Code #
1	3	01	=	1301

The second student is a male in a home economics related program. His number would be

Sex	Program	Individual #		Code #
1	5	02	=	1502

The third student is also a male in a home economics related program. His number would be

Sex	Program	Individual #		Code #
1	5	03	=	1503

Each student is to be told his or her number at the time the tests are administered, and these numbers are to be used instead of names on the answer sheets.

APPENDIX D

Background Information

1. Identification Number _____

2. School _____

3. Grade in School _____

4. Mother's Occupation _____

5. Father's Occupation _____

6. Mother's Education (Highest Level) _____

7. Father's Education (Highest Level) _____

8. Which of the following categories comes closest to your family income?

a.	_____	less than $5,000	d.	_____	$15,001-$20,000
b.	_____	$5,001-$10,000	e.	_____	$20,001-$25,000
c.	_____	$10,001-$15,000	f.	_____	$25,001 and over

9. Have you had any introductory vocational courses? ___ yes ___ no
If yes, list the names of the courses here. _____
_____

10. List the jobs you have held. _____
_____

11. Who suggested you take a vocational program?

a. _____ guidance counselor
b. _____ parent
c. _____ friend
d. _____ other (specify) _____

APPENDIX E

Student Permission Form

Dear Student,

Your school is participating in a research project which is being conducted through Rutgers University. The purpose of this research is to study the reasons why people select specific vocational career areas. The results of this study will be used to provide improved career guidance for students.

Since you have elected a vocational program in your school we would like you to participate in this research. Your participation will include the filling out of a short questionnaire and two standardized career guidance instruments. One of these instruments is the Strong-Campbell Interest Inventory which is designed to increase your understanding of the ways in which your interests fit into the world of work. The second instrument is the Differential Aptitude Test which measures knowledges and skills which are important for success in specific vocational areas.

These instruments will be scored by a computer and returned to the school guidance department where you will have access to them. You may use the scores to discuss career plans with your guidance counselor.

Each participating student will be assigned a number by the school guidance department, and only the guidance faculty will have access to the names. For purposes of the research project only the test results and numbers will be used. The names will not be sent to the researcher. Students are free to withdraw from the study at any time.

Please return this signed form to the school guidance office by _____. Testing will take place on _____.

Sincerely,

Doris L. Dopkin
Project Director

- -

I have read the enclosed information and agree to participate in the described research project.

_____
(Student's Signature)

DLD/cwa

APPENDIX E (CONT'D)
Parent Permission Form

Dear Parent or Guardian,

Your school district has been asked to participate in a research project which is being conducted through the Rutgers Graduate School of Education. The purpose of this research is to study the reasons why people select specific vocational career areas. The results of this study will be used to provide improved career guidance for students. We would like to have your son/daughter participate in this project.

Each student who participates will be asked to fill out a short questionnaire and two standardized career guidance instruments. One of these instruments is the Strong-Campbell Interest Inventory which is designed to increase one's understanding of the ways in which individual likes and dislikes fit into the world of work. The second standardized instrument is the Differential Aptitude Test which measures a person's ability to acquire specific knowledge and skills which are related to successful performance in specific vocational areas.

The testing will take place at the school at no cost to the school or the students. The instruments will be scored by computer and returned to the school where the information can be used to discuss career plans with your son or daughter.

Each participating student will be assigned a number by the school guidance department, and only the guidance faculty will have access to the names. For purposes of the research project only the test results and numbers will be used. The names will not be sent to the researcher. Students are free to withdraw from the study at any time.

Please return this signed form to the school guidance office by _____. Testing will take place on _____.

Sincerely,

Doris L. Dopkin
Project Director

- - - -